

Montana Department of Environmental Quality
Permitting and Compliance Division
Waste and Underground Tank Management Bureau
P.O. Box 200901
Helena, Montana 59620-0901

DRAFT ENVIRONMENTAL ASSESSMENT

Montana Hazardous Waste Permit Number: MTHWP-99-02

Issued to: ExxonMobil Refining Company
For the ExxonMobil Billings Refinery, Billings, Montana

Legal Description: Section 25
Township 1 North, Range 26 East
LAT 45.8125 LONG -108.43389
Yellowstone County, Montana

Issued by: Hazardous Waste Section
Waste and Underground Storage Tank Management Bureau
Permitting and Compliance Division
Montana Department of Environmental Quality

Purpose of the Environmental Assessment

The Montana Department of Environmental Quality (MDEQ) is required under the Montana Environmental Policy Act (MEPA) to conduct an environmental assessment (EA) on the proposed permit action described in this document. An EA details: 1) all reasonable alternatives to MDEQ's action; and 2) outlines the potential impacts to the human environment resulting from MDEQ's permitting action and reasonable alternatives to that action.

Based on the impact analysis and professional judgment, MDEQ makes a decision on the proposed permit action and summarizes the decision in the EA. If the decision significantly impacts the human environment, a more detailed environmental review, called an environmental impact statement, must be conducted by MDEQ.

Public Comment Period

The public including interested citizens, MDEQ, EPA, other governmental agencies, and the applicant are provided a minimum of forty-five (45) days to review and comment on this draft EA. **The comment period will extend from December 22, 2008 through February 13, 2009.**

All persons wishing to comment on the draft EA should submit comments in writing to:

Ann Kron
Environmental Science Specialist
Waste and Underground Tank Management Bureau
Montana Department of Environmental Quality
P.O. Box 200901
Helena, MT 59620-0901

All written comments must be received by the MDEQ on or before February 13, 2009 for consideration. Please contact Ann Kron at (406) 444-5824 or at the address listed above for further information.

Montana Hazardous Waste Regulations

Rules administering hazardous waste management in Montana are set forth in the Administrative Rules of Montana (ARM), Title 17, Chapter 53, Sub-Chapters 1 through 12. Federal regulations for hazardous waste management are set forth in the Code of Federal Regulations (CFR), Parts 124 and 260 through 279, and are incorporated by reference in ARM. For ease of reading this document, when federal regulations under Title 40 of the CFR have been incorporated by reference into ARM, only the federal citation is used.

Description of Project

In 1988 MDEQ and EPA issued hazardous waste permits to Exxon Company for operation of three land treatment units, treatment of leaded tank bottoms in an open tank prior to off-site shipment, storage of hazardous waste in containers prior to off-site shipment, and facility-wide corrective action. Hazardous waste permits are effective for ten years. ExxonMobil's permit was reissued in 1999 and includes requirements for continued operation and/or closure of an operating land treatment unit and associated vehicle decontamination pad, an operating waste staging area, two land treatment units undergoing closure, a lead weathering tank undergoing closure, and continuing requirements for facility-wide corrective action. MDEQ and the EPA jointly issued the modules of the permit pertaining to facility-wide corrective action. In 2000, MDEQ received authorization from EPA to be the sole authority for oversight of the ExxonMobil permit.

In accordance with requirements for facility-wide corrective action, ExxonMobil has completed the investigation of releases of contamination to the environment and designing remedies to address those

releases. ExxonMobil has conducted studies of contamination at the ExxonMobil Billings Refinery (Refinery) and has completed a RCRA Facility Investigation (RFI) report, a Risk Assessment, and a Corrective Measures Study (CMS). Based on those documents, the Department has selected potential remedial measures at the site and has prepared a Statement of Basis that explains the corrective action process and the proposed remedies in detail.

The Montana hazardous waste permit will incorporate the selected remedies and implement the corrective measures. ExxonMobil will be required to submit a Corrective Measures Implementation Plan and Report that will include any design, construction, operation, maintenance, and monitoring requirements to implement the remedies.

Objectives of Proposed MDEQ Action

The objective of the MDEQ action (selecting remedies and modifying the permit to include the remedies) is to comply with the provisions of the ExxonMobil hazardous waste and corrective action permits, and the ARM, which incorporate the CFR by reference. As stated in 40 CFR 264.101, ExxonMobil is required to institute corrective measures for all releases of hazardous waste or constituents from solid waste management units (SWMUs) and areas of concern (AOCs) at the facility. In addition, corrective action must be implemented for any contamination found outside the facility boundary. Condition II.CA.F. of the ExxonMobil hazardous waste permit states that MDEQ will select remedial measures to be taken for areas of contamination at the facility, document the selected remedy in a Statement of Basis, and initiate a permit modification as set forth in 40 CFR 270.41 to incorporate the selected remedy into the hazardous waste permit.

The proposed remedial actions provided in this document apply only to groundwater and subsurface soil in each area. Surface soil was shown to be below risk based levels and therefore a surface soil remedy is not required.

Alternatives Dismissed From Further Consideration

The Corrective Measures Study identified corrective action technologies that were then screened to eliminate technologies that were not feasible to implement, were unlikely to perform satisfactorily or reliably, or may not achieve corrective action objectives within a reasonable period of time. Eleven of the technologies were retained as feasible. Those technology options were then evaluated against technical,

environmental, human health, and institutional criteria according to the requirements of the HSWA Permit for the ExxonMobil Billings Refinery. Four of the evaluated technologies were deemed as unreasonable and were not considered further. Those technologies were Engineered Barrier with Hydraulic Control, Engineered Treatment Barrier, Hydraulic Control, and NAPL Recovery from Engineered Recovery Wells. Details on the screening of preliminary corrective action technologies and the technology evaluations are provided in the CMS Report. (February 2005). Of the technologies that were retained, it was found that no one technology achieved the criteria for site remediation, but a combination of several technologies formed the best overall corrective measures alternative for the site.

Alternatives Considered

This section describes the alternatives considered for remedial corrective action at the Refinery. There are three distinct areas of the Refinery which require different alternatives to achieve the best remedial success: the Interior Refinery Area, NAPL Accumulation Areas, and River Boundary Areas (figure 1).

Alternative 1 – No Action

The No Action alternative provides a baseline from which to analyze other alternatives. It does not include any active remediation or monitoring.

Alternative 1 does not comply with Montana's hazardous waste laws and regulations which require corrective action for on- and off-site contamination, or with Montana's water quality regulations, which require that surface and groundwater meet water quality standards under Circular DEQ-7. Therefore, this alternative is not reasonable and was not considered further.

Alternative 2 – Proposed Action

Under this alternative, MDEQ would modify the permit to include the remedies proposed by ExxonMobil. The proposed actions would include a combination of the remedies considered reasonable during the evaluation:

- Interior Refinery Area: Monitored Natural Attenuation and Institutional Controls.
- NAPL Accumulation Area: Vacuum-Enhanced Recovery, 5 Capture Zone Wells, 2 Interceptor Trenches, and Institutional Controls
- River Boundary Area: Air Sparging, Phytoremediation, Monitored Natural Attenuation, and Institutional Controls.

Institutional Controls (ICs)

This remedy applies to the Interior Refinery Area, NAPL Accumulation Areas, and River Boundary Area.

Institutional controls would be implemented to prevent use or exposure to contaminated groundwater and subsurface soils at the Refinery. Environmental institutional controls are legal or administrative restrictions used to prevent and/or limit potential exposure to contaminants in impacted areas. Legal and/or administrative controls and physical restrictions would be applied to each corrective action area to control or prevent present and future use and access to contaminated groundwater and subsurface soils.

Monitored Natural Attenuation (MNA)

This remedy applies to the Interior Refinery Area, NAPL Accumulation Areas, and River Boundary Areas.

Routine groundwater monitoring would be conducted to evaluate progress towards meeting cleanup goals through natural attenuation processes. Natural attenuation is the reduction in mass or concentration of a chemical compound in soil or groundwater over time or distance from the source due to naturally-occurring physical, chemical, or biological processes. Monitored natural attenuation (MNA) refers to the use of natural attenuation processes within the context of a carefully controlled and monitored site cleanup approach. To measure whether natural attenuation of compounds is occurring, a monitoring program must be designed to 1) demonstrate natural attenuation is occurring according to expectations, 2) detect changes in environmental and contaminant conditions, and 3) verify the contaminant plume is not expanding. MNA would end when concentrations of contaminants meet Montana Circular DEQ-7 Standards.

Vacuum-Enhanced NAPL Recovery

This remedy applies to the NAPL Accumulation Areas.

An extraction tube would be placed in each existing groundwater monitoring well located in the NAPL Accumulation Areas and a vacuum would be applied to the tubing to remove NAPL at an

enhanced rate. The vacuum would pump both water and/or hydrocarbons from the well. In addition, the application of a vacuum to the subsurface also increases the rate of atmospheric air traveling through the subsurface soils, which provides an additional source of oxygen to enhance biodegradation of any impacts above the water table.

Air Sparging

This remedy applies to the River Boundary Areas

Air sparging would consist of installing specially designed wells to a depth several feet below the historical water table elevation. Atmospheric air would be injected through the wells to increase the dissolved oxygen concentration to enhance biodegradation and also to physically strip volatile hydrocarbon compounds from the groundwater.

Phytoremediation

This remedy applies to the River Boundary Areas

Phytoremediation would consist of planted vegetation along the river boundary to remediate dissolved-phase constituents and perform limited hydraulic control. Phytoremediation would include the direct use of living plants for in-situ remediation of impacted groundwater and soil through contaminant removal, degradation, or containment. Additionally, plant water uptake would act as nominal hydraulic control.

Capture Zone Wells and Interceptor Trenches

This remedy applies to the NAPL Accumulation Area

This consists of five wells that pump groundwater in an effort to create a capture zone which is intended to prevent any contaminants from being released into the Yellowstone River. This remedy also includes two interceptor trenches in which total fluids are pumped from the interceptor trench sumps into an API separator.

Stipulations and Controls

All conditions in the draft permit modification are based on requirements in Title 17, Chapter 53 of ARM for the management of hazardous waste. ExxonMobil must comply with the permit conditions to be in compliance with Montana's hazardous waste laws and regulations.

Analysis of Regulatory Impacts on Private Property Rights

A Private Property Assessment Act Checklist was completed for the draft permit and is on file at the MDEQ. The MDEQ determined that no takings or damaging implications exist requiring a further impact assessment.

Summary of Impacts

The checklist below was only completed for the alternative 2, which is the only alternative that was deemed reasonable during the evaluation process.

Tables 1 and 2 rate potential human environment impacts from modifying ExxonMobil's hazardous waste permit MTHWP-99-01 according to Alternative 2. The human environment includes those attributes, such as biological, physical, social, economic, cultural, and aesthetic factors, that interrelate to form the environment. Impacts may be adverse, beneficial, or both. The following criteria are used to rate the impacts:

- ◆ The severity, duration, geographic extent, and frequency of occurrence;
- ◆ The probability the impact will occur if the proposed action occurs;
- ◆ Growth-inducing or growth-inhibiting aspects of the impact;
- ◆ The quantity and quality of each environmental resource or value effected;
- ◆ The importance to the State and society of each environmental resource or value effected;
- ◆ Any precedent set as a result of an impact from the proposed action that would commit MDEQ to future actions with significant impacts or a decision in principle about such future actions; and
- ◆ Potential conflict with local, state, or federal laws, requirements, or formal plans.

The following are definitions for major, moderate, minor, none, and unknown impacts on the human environment:

Major: A significant change from the present conditions of the human environment. Major impacts are serious enough to warrant preparing an environmental impact statement (EIS).

Moderate: Not a major or minor change from the present condition of the human environment. A single moderate impact may not warrant preparing an EIS; however, when considered with other impacts, an EIS may be required.

Minor: A slight change from the present condition of the human environment. Minor impacts are not serious enough to warrant preparing an EIS.

None: No change from the present conditions of the human environment.

Unknown: An EIS must be conducted to determine the effects on the human environment if impacts are unknown.

Table 1. Potential Impacts on Physical and Biological Environment

Resources		Major	Moderate	Minor	None	Unknown	Discussion Attached
A.	Air Quality				X		
B.	Water Quality, Quantity, and Distribution			X			X
C.	Geology and Soil Quality, Stability, and Moisture				X		
D.	Historical and Archaeological Sites				X		
E.	Aesthetics				X		
F.	Terrestrial and Aquatic Life and Habitats				X		
G.	Vegetation Cover, Quantity, and Quality				X		
H.	Unique, Endangered, Fragile, or Limited Environmental Resources				X		
I.	Demands on Environmental Resource of Water, Air, and Energy				X		
J.	Cumulative and Secondary Impacts				X		

Table I Discussion**B. Water Quality, Quantity, and Distribution:**

The use of vacuum-enhanced recovery systems, trenches, capture zone wells, and phytoremediation will alter the distribution and natural flow of groundwater and improve water quality in the subsurface. Such devices are installed with the goal of preventing contaminated groundwater from migrating to the Yellowstone River and to reduce subsurface free-phase hydrocarbon mass and dissolved-phase hydrocarbon plumes. Therefore, the effects of both water quality and distribution is positive.

Table 2. Potential Impacts on Social, Economic, and Cultural Environment

Resources		Major	Moderate	Minor	None	Unknown	Discussion Attached
A.	Social Structures and Mores				X		
B.	Cultural Uniqueness and Diversity				X		
C.	Local and State Tax Base and Tax Revenue			X			X
D.	Agricultural or Industrial Production				X		
E.	Human Health				X		
F.	Access to and Quality of Recreational and Wilderness Activities				X		
G.	Quantity and Distribution of Employment				X		
H.	Distribution of Population				X		
I.	Demands for Governmental Services			X			X
J.	Industrial and Commercial Activity			X			X
K.	Locally Adopted Environmental Plans and Goals				X		
L.	Cumulative and Secondary Impacts			X			X

Table 2 Discussion***C. Local and State Tax Base and Tax Revenue***

Impacts on local and state tax base and tax revenue will not increase from those generated by the current permit. This site is expected to be required to conduct groundwater remediation and monitoring indefinitely, which will prevent the space from being available for sale as other uses. Permit-required land use controls, including deed restrictions, survey plat notations, and restrictive covenants would

restrict land use to industrial purposes only. This in turn may have a negative effect on local and state tax base and revenue.

I. Demands for Governmental Services

The selected remedies and permit requirements will require ExxonMobil to submit a Corrective Measures Implementation Workplan and Report, followed by requirements for groundwater monitoring reports, remedy review reports, and annual hazardous waste generator reports. These submittals will be reviewed by MDEQ. Therefore, a minor impact to government services is anticipated.

J. Industrial and Commercial Activity

The selected remedies may create common safety hazards during construction due to drilling equipment and construction activities. Potential short-and long-term risks to site workers during construction and the routine operation and maintenance of the systems are minor. Hazards can be reduced with proper use of personal protective equipment (PPE), engineering controls, and safe construction practices. Risk to nearby communities and environmental receptors would be negligible during construction or operation.

L. Cumulative and Secondary Impacts

Required land use controls, including deed restrictions, survey plat notations, and restrictive covenants would restrict land use to industrial purposes only. Deed restrictions would be required to “run with the land” to ensure any restrictions are forever binding against the owner and successors in interest. Land use controls required by the permit would provide additional long-term protection to that provided by the local zoning authority. Long-term restrictions on land use for industrial purposes required by the permit would have minor positive cumulative and secondary impacts.

Individuals or Groups Contributing to EA

Montana Department of Environmental Quality

Draft EA Prepared

Ann Kron

December 12, 2008

Recommendation

Based on the EA analysis, MDEQ recommends Alternative 2 (the proposed action). ExxonMobil has submitted a complete Corrective Measures Study Report, and the selected remedies and modified permit will provide conditions that are protective of human health and the environment. The final remedy selection will take into account all comments received during the public comment period.

The EA is an adequate level of environmental review; an EIS is not required. The EA analysis demonstrates that this State action will not be major action significantly affecting the quality of the human environment.